

First Semester Review

Hon. Geometry

Chapters 1-4, 13 Name _____

18-23

Write the converse of each conditional. Determine if the converse is true or false.

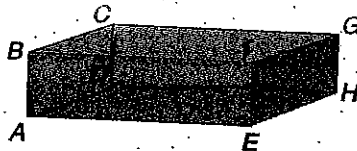
- ① If an angle measures 128° , then it is obtuse.
- ② If two lines have the same slope, then they are parallel and nonvertical.
- ③ Identify the hypothesis of the conditional statement *If two lines are perpendicular, then they form four right angles.*
- ④ Complete this statement of the Law of Syllogism: If $a \rightarrow b$ and $b \rightarrow c$ are true conditional statements, then it is also true that _____.

Find the slopes of the lines parallel to and perpendicular to the line through the given points.

- ⑤ $A(2, 3), B(4, 4)$
- ⑥ $C(3, -3), D(6, -5)$
- ⑦ $E(-1, -2), F(-1, 3)$

Questions 8-11 refer to the rectangular box below.

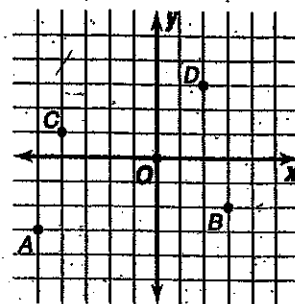
- ⑧ Which segments are skew to \overline{EF} ?
- ⑨ Which segments are parallel to \overline{BC} ?
- ⑩ Which planes is \parallel to plane ADH ?
- ⑪ Which plane is parallel to plane CDH ?



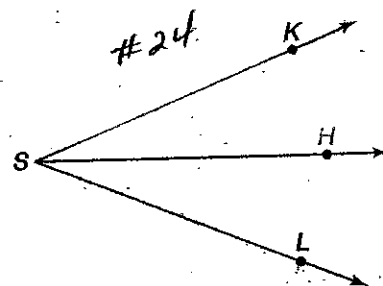
- ⑫ If S is the midpoint of \overline{RT} , $RS = 7x - 13$, and $ST = 4x + 5$, find the measure of \overline{RT} .
- ⑬ What is the slope of the line passing through $A(7, -11)$ and $B(-3, 8)$?
- ⑭ What is the slope of a line parallel to the line passing through $C(2, 6)$ and $D(-1, -5)$?
- ⑮ What is the slope of a line perpendicular to the line passing through $E(-1, 6)$ and $F(-2, -10)$?

If $\angle M$ and $\angle N$ are complementary, $m\angle M = 4x - 3$, and $m\angle N = 2x + 9$, find $m\angle M$ and $m\angle N$.

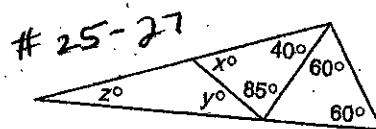
- ⑰ If $\angle KPX$ and $\angle APX$ form a linear pair, then name a pair of opposite rays.



- ⑱ What ordered pair names point A ?
- ⑲ What is the length of \overline{BD} ?
- ⑳ What are the coordinates of the midpoint of \overline{CD} ?
- ㉑ What is the slope of \overline{AC} ?
- ㉒ What is the slope of any line parallel to \overline{BD} ?
- ㉓ What is the slope of any line perpendicular to \overline{AB} ?



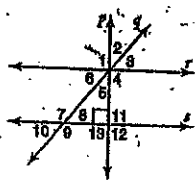
- ㉔ If $m\angle KSH = 4x - 10$, $m\angle LSH = 3$ and \overline{SH} bisects $\angle KSL$, find the measures of all the angles.



Refer to the figure above:

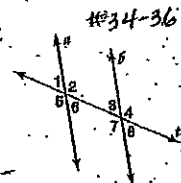
- ㉕ Find the value of x .
- ㉖ Find the value of y .
- ㉗ Find the value of z .

- Which of the numbered angles appear to be obtuse?
- Are $\angle 2$ and $\angle 6$ vertical angles?
- Are $\angle 7$ and $\angle 8$ supplementary angles?
- If $\angle 6 \cong \angle 8$, which lines are parallel and why?
- If $r \parallel s$ and $m\angle 5 = 27$, find $m\angle 3$.
- If $r \parallel s$ and $m\angle 5 = 15$, find $m\angle 7$.

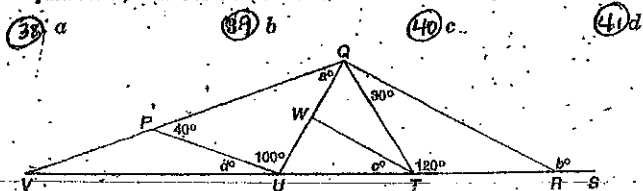


For Questions 34-36, refer to the figure at the right. Lines a and b are parallel.

- What is the special angle pair name for $\angle 2$ and $\angle 4$?
- What is the special angle pair name for $\angle 5$ and $\angle 4$?
- Name two pairs of congruent alternate interior angles.
- What is the slope of a line parallel to the line passing through $(7, 0)$ and $(-2, 4)$?



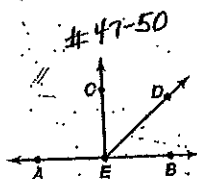
For Questions 38-41, refer to the figure below. $\triangle QTU$ is equilateral, and \overline{TW} bisects $\angle QTU$. Find each measure.



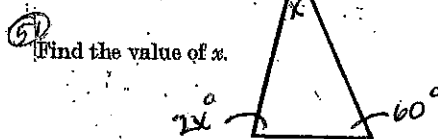
If $\angle A$ and $\angle B$ form a linear pair, and $m\angle A = 53$ degrees, find $m\angle B$.

Find the maximum area of a rectangle if its perimeter is 68 cm.

Write the inverse and contrapositive of "If two lines are parallel, then their slopes are equal."

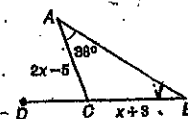


- True or false: \overrightarrow{AE} and \overrightarrow{EB} are opposite rays.
- Identify the sides of $\angle CED$.
- \overrightarrow{ED} bisects $\angle CEB$ and $m\angle DEB = 95$. Find $m\angle CEB$.
- \overrightarrow{EC} bisects $\angle AED$, $m\angle AEC = 2x + 10$, and $m\angle AED = 6x$. Find $m\angle AED$.



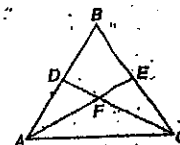
For Questions 52-56, use figure below.

- Classify $\triangle ABC$.
- Find $m\angle ACD$.
- Find $m\angle ACB$.
- Find BC .
- Can an isosceles triangle be an acute triangle?



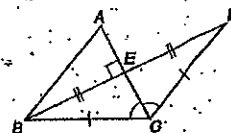
Refer to the figure to complete each statement. Justify your answers.

- If $\overline{DC} \cong \overline{AE}$ and $\angle ACD \cong \angle EAC$, then $\triangle \cong \triangle$.
- If $\overline{BD} \cong \overline{BE}$ and $\angle BDC \cong \angle BEA$, then $\triangle \cong \triangle$.
- If $\angle FAC \cong \angle FCA$ and $\overline{DF} \cong \overline{EF}$, then $\triangle \cong \triangle$.

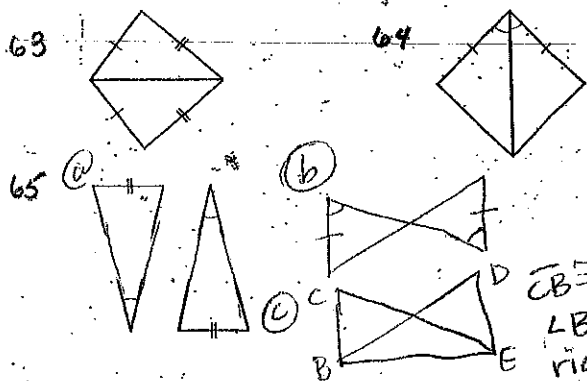


Tell whether each relationship can be assumed from the figure below. Write yes or no.

- $\overline{BE} \perp \overline{BC}$
- E is the midpoint of \overline{BD} .
- $\angle ABE \cong \angle EDC$



For Questions 63-65 determine which postulate or theorem can be used to prove the triangles congruent. If it is not possible to prove them congruent, write not possible.



Find the coordinates of the image of point $(2, -1)$ for each transformation.

- translation down 4 units
- reflection with respect to the x -axis
- rotation with respect to the x -axis and the y -axis
- dilation with center at the origin, scale factor 3

For Questions 70-73 refer to the figure at the right.

- The reflection image of figure 1 with respect to line m is
- The rotation image of figure 2 with respect to lines k and l is
- Which figure is a translation image of figure 3?
- Which figure is the reflection image of figure 4 with respect to m and l .

